

WHAT IS CLAIMED IS:

1. A base station configured to perform radio communication based on code division multiplexing with a mobile station which transmits a preamble prior to a start of transmission/reception of data, and to transmit a pilot signal at a predetermined transmission power to the mobile station, the base station comprising:

preamble receiving means for receiving the preamble spread with a spreading code from the mobile station;

correspondence storing means storing any one of correspondence information between the spreading code used for the preamble and, the reception power or the signal interference ratio of the pilot signal at the mobile station, correspondence information between the spreading code and the preamble transmission power of the mobile station, and correspondence information between the spreading code and the combination of the reception power or the signal interference ratio of the pilot signal at the mobile station with the preamble transmission power of the mobile station; and

determining means for determining at least one of a transmission power and a downlink transmission rate for a signal directed to the mobile station, and

an uplink transmission rate for transmission of information from the mobile station, based on at least the spreading code.

2. The base station according to Claim 1,  
5 further comprising rate instructing means for instructing the mobile station to use the uplink transmission rate determined.

3. The base station according to Claim 1,  
further comprising first setting means for setting a  
10 number of ranks of preamble transmission powers of the mobile station corresponding to spreading codes used for the preamble, according to a number of ranks of said uplink transmission rates determined, and for  
setting a difference between ranks of transmission  
15 powers according to a difference between transmission powers caused by a difference between ranks of uplink transmission rates.

4. The base station according to Claim 1,  
wherein areas corresponding to respective ranks of  
20 preamble transmission powers in a cell are set so that numbers of mobile stations in the respective areas become substantially equal according to a distribution of mobile stations in the cell.

5. A mobile station configured to perform  
25 radio communication based on code division multiplexing with a base station which transmits a

pilot signal at a predetermined transmission power, and to transmit a preamble to the base station prior to a start of transmission/reception of data, the mobile station comprising:

5           correspondence storing means storing any one of  
correspondence information between the spreading code  
used for the preamble and, the reception power or the  
signal interference ratio of the pilot signal at the  
mobile station, correspondence information between  
10       the spreading code and the preamble transmission  
power of the mobile station, and correspondence  
information between the spreading code and the  
combination of the reception power or the signal  
interference ratio of the pilot signal at the mobile  
15       station with the preamble transmission power of the  
mobile station; and

          spreading means for spreading the preamble with  
the spreading code corresponding to any one of the  
reception power or the signal interference ratio  
20       about the pilot signal at the mobile station, the  
preamble transmission power of the mobile station,  
and the combination of the reception power or the  
signal interference ratio of the pilot signal at the  
mobile station with the preamble transmission power  
25       of the mobile station, based on said correspondence.

6. A communication system comprising a base

station configured to transmit a pilot signal at a predetermined transmission power, and a mobile station configured to transmit a preamble to the base station prior to a start of transmission/reception of data, the communication system being configured to implement radio communication based on code division multiplexing between the base station and the mobile station,

wherein the mobile station comprises:

spreading means for spreading the preamble with a spreading code corresponding to any one of the reception power or the signal interference ratio about the pilot signal at the mobile station, the preamble transmission power of the mobile station, and the combination of the reception power or the signal interference ratio of the pilot signal at the mobile station with the preamble transmission power of the mobile station, based on any one of correspondence information between the spreading code used for the preamble and, the reception power or the signal interference ratio of the pilot signal at the mobile station, correspondence information between the spreading code and the preamble transmission power of the mobile station, and correspondence information between the spreading code and the combination of the reception power or the signal

interference ratio of the pilot signal at the mobile station with the preamble transmission power of the mobile station; and

5 preamble transmitting means for transmitting the preamble after the spreading process to the base station; and

wherein the base station comprises:

determining means for determining at least one of a transmission power and a downlink transmission  
10 rate for a signal directed to the mobile station, and an uplink transmission rate for transmission of information from the mobile station, corresponding to at least the spreading code, based on any one of  
correspondence information between the spreading code  
15 used for the preamble and, the reception power or the signal interference ratio of the pilot signal at the mobile station, correspondence information between the spreading code and the preamble transmission power of the mobile station, and correspondence  
20 information between the spreading code and the combination of the reception power or the signal interference ratio of the pilot signal at the mobile station with the preamble transmission power of the mobile station.

25 7. A communication system according to Claim 6 is characterized, wherein the base station further

comprises rate instructing means for instructing the mobile station to use the uplink transmission rate determined.

5           8.     A transmission control method of  
implementing radio communication based on code  
division multiplexing between a base station  
configured to transmit a pilot signal at a  
predetermined transmission power and a mobile station  
configured to transmit a preamble to the base station  
10 prior to a start of transmission/reception of data,  
the transmission control method comprising:

a spreading step wherein the mobile station  
determines a spreading code corresponding to any one  
of the reception power or the signal interference  
15 ratio about the pilot signal at the mobile station,  
the preamble transmission power of the mobile  
station, and the combination of the reception power  
or the signal interference ratio of the pilot signal  
at the mobile station with the preamble transmission  
20 power of the mobile station, based on any one of  
correspondence information between the spreading code  
used for the preamble and, the reception power or the  
signal interference ratio of the pilot signal at the  
mobile station, correspondence information between  
25 the spreading code and the preamble transmission  
power of the mobile station, and correspondence

information between the spreading code and the combination of the reception power or the signal interference ratio of the pilot signal at the mobile station with the preamble transmission power of the mobile station, and the mobile station spreads the preamble with the determined spreading code;

a preamble transmitting step wherein the mobile station transmits the preamble after the spreading process to the base station; and

a rate determining step wherein the base station determines at least one of a transmission power and a downlink transmission rate for a signal directed to the mobile station, and an uplink transmission rate for transmission of information from the mobile station, corresponding to at least the spreading code, based on any one of correspondence information between the spreading code used for the preamble and, the reception power or the signal interference ratio of the pilot signal at the mobile station, correspondence information between the spreading code and the preamble transmission power of the mobile station, and correspondence information between the spreading code and the combination of the reception power or the signal interference ratio of the pilot signal at the mobile station with the preamble transmission power of the

mobile station.

5 9. A transmission control method according to Claim 8, further comprising rate instructing step wherein the base station instructs the mobile station to use the uplink transmission rate determined.

10 10. A mobile station control program to be executed by a computer provided in a mobile station configured to perform radio communication based on code division multiplexing with a base station which transmits a pilot signal at a predetermined transmission power, and to transmit a preamble to the base station prior to a start of transmission/reception of data,

15 the mobile station storing correspondence information between a spreading code used for the preamble, and a reception power or a signal interference ratio of the pilot signal at the mobile station, correspondence information between the spreading code and a preamble transmission power of  
20 the mobile station, or correspondence information between the spreading code and a combination of a reception power or a signal interference ratio of the pilot signal at the mobile station with a preamble transmission power of the mobile station, the mobile  
25 station control program comprising:

a spreading step of spreading the preamble with



the spreading code corresponding to the reception power or the signal interference ratio of the pilot signal at the mobile station, the preamble transmission power of the mobile station, or the combination of the reception power or the signal interference ratio of the pilot signal at the mobile station with the preamble transmission power of the mobile station, based on the correspondence information stored; and

10 a transmitting step of transmitting the preamble after the spreading step to the base station.